



U.S. Department of Energy
**Energy Efficiency
and Renewable Energy**
Bringing you a prosperous future where energy
is clean, abundant, reliable, and affordable

Renewable Energy & Energy Efficiency Consumer Information Center

Thank you for visiting the Solar Decathlon. Whether you are planning to begin an energy efficiency retrofit or building a new house using energy-saving approaches and a little — or a lot of — solar power, this list of resources has been prepared with you in mind. While this list represents only a small fraction of available information resources on these topics, it covers a range of practices and technologies used today. Please browse, learn, and enjoy.
The information covered includes:

Getting Started

Solar Energy (General)

Solar Electricity (Photovoltaics)

Building Technologies

Biomass and Biofuels

Wind Energy

Geothermal Energy

Financing

Energy Efficiency, Renewable Energy, and Related Topics

Catalogs: Solar, Wind, and Biofuels

Web Sites and Publications

Getting Started

Glossary of Energy Terms

This section of the U.S. Department of Energy (DOE) Web site contains helpful definitions of common (and not-so-common) energy-related terms.

www.eere.energy.gov/consumerinfo/energyglossary.html

DOE Energy Efficiency and Renewable Energy (EERE) Information Center

Do you have a question about how to make your home or a building more energy efficient? Or does your question concern the use of renewable energy? On this Web page, you can ask an Energy Expert — and he or she will even answer you! www.eere.energy.gov/informationcenter

The Home Energy Advisor

It's fast, it's free, it's full of helpful information. Just feed the Home Energy Advisor a bit of data about your house, and this do-it-yourself energy audit tool will calculate how much you could save by making specific energy improvements. <http://homeenergysaver.lbl.gov>

Solar Energy (General)

Solar-electricity, or photovoltaics (PV) converts sunlight directly into electricity. You may be more familiar with PV cells as solar cells that power watches and calculators. But PV can do much more as you can see from the homes at Solar Decathlon. It can provide electricity for residential and commercial buildings, including power for lights and air conditioning. PV can also be a convenient source of power for pumping water, electrifying fences, or aerating ponds in remote applications. To get a primer on this fascinating subject, visit:

www.eere.energy.gov/solar/pv_consumers.html



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DOE Solar Energy Technologies Program

This program is focused on developing solar energy technologies to power our world. It is motivated by a belief that science and technology, guided by purpose and vision, can deliver new energy resources that are clean, reliable, and secure. www.eere.energy.gov/solar

Million Solar Roofs

Million Solar Roofs is an initiative to facilitate the installation of solar energy systems on one million U.S. buildings by 2010. Two types of solar technology are included: solar electric (also called photovoltaic) systems, which use the sun's energy to directly produce electricity, and solar thermal systems, which produce heat for domestic hot water, space heating, or heating swimming pools. The initiative supports states and local communities as they develop a strong commitment to the sustained deployment of solar energy technologies. www.millionsolarroofs.org

MySolar

This site is for everyone who is interested in solar energy: what it is, whether you need it, and how and where you can get it.

www.mysolar.com

Solar Today

This bimonthly magazine covers all solar technologies, from photovoltaics to climate-responsive buildings to wind power. Regular topics include building case studies, energy policy, and community-scale projects. It's published by the American Solar Energy Society. www.solartoday.org

Solar Electricity (Photovoltaics)

National Center for Photovoltaics

Headquartered at the National Renewable Energy Laboratory, the National Center for Photovoltaics is the nation's premier research facility for PV or solar electricity. www.nrel.gov/hcpv

Photovoltaics

Here's an excellent introduction to solar electricity. You'll see simple diagrams of how solar cells operate and how they are joined together to form modules and arrays. There's also a batch of Frequently Asked Questions, which just may answer some of yours.

www.flasolar.com/photovol_main.htm

A Consumer's Guide: Get Your Power from the Sun

This booklet is designed to guide you through the process of buying a solar electric system. A solar electric system can be a substantial investment, but careful planning will help ensure that you make the right decisions. www.nrel.gov/docs/fy04osti/35297.pdf

Solar Electric Better Building Series

This series of fact sheets helps you learn more about the topic of your choice.

Basics of a Solar Electric System: www.nrel.gov/docs/fy02osti/31686.pdf

Myths about Solar Electricity: www.nrel.gov/docs/fy03osti/32529.pdf

Battery Power for Your Residential Solar Electric System: www.nrel.gov/docs/fy02osti/31689.pdf

Connecting Your Solar Electric System to the Utility Grid: www.nrel.gov/docs/fy02osti/31687.pdf

How to Size a Grid-Connected Solar Electric System: www.nrel.gov/docs/fy02osti/31688.pdf

Making the Most of Residential Photovoltaic Systems

Read this booklet to see how far you can stretch solar energy by adding energy efficiency features to your home.

www.nrel.gov/docs/fy99osti/26373.pdf

Solar Thermal Energy

Consumer's Guide: Heat Your Water with the Sun

Since the early 1970s, the efficiency and reliability of solar heating systems and collectors have increased greatly and costs have dropped. Improvements to materials, a rating system for consumers, and more attractive designs have all added to the appeal of these systems.

www.nrel.gov/docs/fy04osti/34279.pdf



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Solar Hot Water and Space Heating and Cooling

Visit this Web site and you'll soon see that solar thermal technologies are relatively easy to understand. Solar water heating is among the most practical, affordable, and durable renewable energy technologies available. www.eere.energy.gov/RE/solar_hotwater.html

Solar Heated Pools for Your Home

Looking to get your feet wet regarding solar-heated swimming pools? This short pamphlet with lots of photos and captions introduces solar water heating as a mature, economical, and environmentally friendly technology for your pool. www.nrel.gov/docs/fy01osti/30179.pdf

Solar Heating for Consumers

Solar heating technologies are relatively inexpensive and easy to install. The "related links" page on this site provides access to a number of helpful Web sites and fact sheets for incorporating solar heating into your home, business, or ranch. www.eere.energy.gov/solar/sh_consumers.html

Building Technologies

Building Topics

This section of the DOE Energy Efficiency and Renewable Energy Web site focuses on saving energy in homes and other buildings. Visit the site to learn about the building envelope, whole-building design, and building energy codes. www.eere.energy.gov/EE/buildings.html

Elements of an Energy-Efficient House

This fact sheet is a good place to start learning about the basics of energy-efficient design and construction techniques, such as optimum value engineering, structural insulated panels, and insulating concrete forms. www.nrel.gov/docs/fy00osti/27835.pdf

How to Build a Better Home

Learn to use solar energy and the whole-building approach to reduce your environmental impact, live comfortably, and save money. www.nrel.gov/docs/fy00osti/26582.pdf

Building America

The Building America project combines the knowledge and resources of industry leaders with the U.S. Department of Energy's technical capabilities. Together, they act as a catalyst for change in the home-building industry. http://www.eere.energy.gov/buildings/building_america/

Calling All Builders

In this one location, you will find links to Web sites relating to Building America teams, residential communities, and Building America partners in industry and construction. In addition, you will find access to research and education organizations, government agencies, and a wide variety of resources pertaining to energy-efficient home construction.

http://www.eere.energy.gov/buildings/building_america/related_links.html

Top Web sites for Buyers of energy-efficient homes

The Building America Program conducts research to develop advanced building energy technologies that make homes and communities much more energy efficient. Consumers benefit through lower energy bills and maintenance costs and healthier, more comfortable, and more durable houses

http://www.eere.energy.gov/buildings/building_america/for_consumers_top_sites.html

Top Web Sites for Builders of energy-efficient homes

Builders of energy-efficient homes will find a variety of useful resources linked to this Web page. Building America provides the results of its research to help builders improve the quality and performance of new and existing homes throughout the country.

http://www.eere.energy.gov/buildings/building_america/for_builders_top_sites.html

NextGen

Read about a project known as NextGen that recently received an award in the affordable housing category from the Colorado West chapter of the American Institute of Architects, demonstrating that cost-effective housing can also be environmentally friendly. This and other stunning examples of great homes are highlighted. http://www.eere.energy.gov/buildings/building_america/rhah_0505_nextgen.html

Zero Energy

Wander through a Zero Energy Home.....a home that makes as much or more energy as it uses.

http://www.energycodes.gov/news/2005_workshop/presentations/track_c/j_sargent_austin_code.pdf



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Windows, Lighting, and Appliances

Efficient Windows

Learn about the benefits of energy-efficient windows and how they work. See the “Resources” section for a handy glossary of window terminology and fact sheets that provide a step-by-step guide to selecting energy-efficient windows in your state or region. www.efficientwindows.org

Selecting Windows for Energy Efficiency

New window technologies have increased energy benefits and comfort, providing more practical options for consumers. This selection guide will help homeowners, architects, and builders take advantage of the expanding window market. <http://windows.lbl.gov/pub/selectingwindows/window.pdf>

Lighting an Energy-Efficient Future

The big difference between compact fluorescents and their incandescent cousins is the amount of energy they use, with compact fluorescents using roughly one-quarter the electricity of incandescents for the same amount of light production. Visit this site to learn more about the topic and to calculate how much energy you could save by making the switch. www.homeenergy.org/consumerinfo/lighting

Become an Energy Star

On this Web site, you'll learn how to save money and energy by purchasing Energy Star-labeled products such as refrigerators, washers and dryers, dishwashers, and television sets. You'll also find info about home improvements, lighting, and heating and cooling. www.energystar.gov

The Most Energy-Efficient Appliances

This Web site contains a list of the most energy-efficient appliances from the “Consumer Guide to Home Energy Savings” booklet, based on product directories and manufacturers' data regarding energy performance. www.aceee.org/consumerguide/mostenef.htm

Biomass and Biofuels

National Biomass Program

The DOE National Biomass Program seeks to cost effectively produce ethanol and other fuels, chemicals, and power from biomass resources such as agricultural and forestry residues or fast-growing trees and grasses. www.eere.energy.gov/biomass

NREL Biomass Research and National Bioenergy Center

This center unifies DOE's efforts to advance technology for producing fuels, chemicals, materials, and power from biomass. www.nrel.gov/biomass and www.nrel.gov/biomass/national_bioenergy.html

Biopower for Farmers and Ranchers

This site provides information and resources on biopower, or biomass power, technologies for use on farms and ranches. www.nrel.gov/clean_energy/farmer_biopower.html

Bridge to Corn Ethanol Industry

This site describes an initiative aimed at reducing the cost of domestic ethanol production, creating new markets for U.S. corn growers, and connecting the established corn ethanol industry with the emerging technologies that produce ethanol from agricultural wastes and other types of biomass. www.eere.energy.gov/biomass/bridging_current.html

USDA Biofuels Information

This U.S. Department of Agriculture Web site discusses biodiesel and liquid fuels from biomass. www.nal.usda.gov/ttic/biofuels.htm

The AgSTAR Program

The U.S. Environmental Protection Agency operates an animal waste-to-energy program jointly sponsored by the DOE and USDA. The program investigates anaerobic digestion of animal residues. www.epa.gov/agstar



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Wind Energy

National Wind Technology Center (NWTC)

This world-class research facility is managed by the National Renewable Energy Laboratory for DOE. NWTC researchers work with members of the wind energy industry to advance wind power technologies that lower the cost of wind energy through R&D of state-of-the-art wind turbine designs.

www.nrel.gov/wind

American Wind Energy Association

Wind energy, a clean and renewable source of electric power, is also the world's fastest-growing energy source. Learn all about it on this site.

www.awea.org

Wind Energy Basics

A good selection of resources to help you learn how a small wind energy system could provide your farm or ranch with electricity. Some resources also provide information on the economic opportunities available to those who let utilities put large-scale wind turbines on their farms and ranches (see "Introduction to Wind Energy"). www.nrel.gov/clean_energy/farmer_wind.html

Wind Energy Technologies (DOE Wind & Hydropower Technologies Program)

Learn about how wind energy works, what to consider if you want to use wind power at home, and the latest in R&D.

www.eere.energy.gov/windandhydro/wind_technologies.html

Wind Powering America

Wind Powering America is a commitment to dramatically increase the use of wind energy in the United States. This initiative will establish new sources of income for American farmers, Native Americans, and other rural landowners, and meet the growing demand for clean sources of electricity. www.eere.energy.gov/windandhydro/windpoweringamerica

American Wind Energy Association's Small Wind Systems

Includes answers to Frequently Asked Questions, State-by-State Information, Advice from an Expert, and a list of Equipment Providers.

www.awea.org/smallwind.html

Apples & Oranges: Choosing a Home-Sized Wind Generator

This article by Mick Sagrillo of *Home Power* magazine provides comparisons of small wind turbines and general advice to anyone considering purchasing a small wind turbine.

Article: www.homepower.com/files/hp90-50.pdf

Technical Appendix: www.homepower.com/files/SagrilloA&OTech.App.pdf

Harvesting the Wind: A Landowner's Guide to Wind Energy Development in the Great Plains

Short brochure geared toward landowners interested in making their land available to wind energy developers.

www.undeerc.org/wind/literature/wind_brochure.pdf

The Most Frequently Asked Questions About Wind Energy (American Wind Energy Association)

A brief introduction to wind energy covering a variety of topics including how wind turbines work, the environmental and economical benefits of wind energy, and the cost of wind energy.

www.awea.org/pubs/documents/FAQ2002%20-%20web.PDF

Site Analysis for Wind Generators

A two-part article by Mick Sagrillo from *Home Power* magazine.

Part one: www.homepower.com/files/hp40-86.pdf

Part two: www.homepower.com/files/hp41-60.pdf

Small Wind Electric Systems: A U.S. Consumer's Guide

This guide can help you determine whether a small wind electric system is right for your home or business. It also contains a regional wind resource map and a list of incentives and contacts for more information. www.nrel.gov/docs/fy04osti/36680.pdf

Wind Energy for Your Farm or Rural Land (American Wind Energy Association)

This short paper discusses the benefits of wind energy development and includes facts and tips for owners of windy land.

www.awea.org/pubs/factsheets/WindyLandownersFS.pdf



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Wind Web Tutorial (American Wind Energy Association)

Online tutorial covering numerous topics including wind energy basics, economics of wind energy, environmental impacts of wind energy, and offshore wind energy development. www.awea.org/faq/index.html

Windustry

Windustry promotes wind energy through outreach, educational materials, and technical assistance to rural landowners, local communities and utilities, and state, regional, and nonprofit collaborations. www.windustry.com

Geothermal Energy

DOE Geothermal Technologies Program

Read a basic overview of geothermal energy and how research is progressing. The site includes links for homeowners, educators, and industry. www.eere.energy.gov/geothermal

Savings from the Ground Up

Visit this site and learn why geothermal heat pumps make sense for the home or business owner — because they're quiet, cost effective, and durable. www.geoexchange.org

Financing

Financing a Home Improvement

Visit this site to learn about energy-efficient mortgages (EEMs), which can help you finance energy upgrades. If you purchase a house that is already considered energy efficient, an EEM may qualify you for more house with less income, because utility bills will be low.

<http://hes0.lbl.gov/hes/makingithappen/financing.html>

The Borrower's Guide to Financing Solar Energy Systems

This guide is for lenders and consumers who need information about nationwide financing programs for solar energy systems.

www.nrel.gov/docs/fy99osti/26242.pdf

Energy Efficiency, Renewable Energy, and Related Topics

Consumer Energy Information

This DOE site is a virtual treasure trove of consumer-oriented online resources in the area of energy efficiency and renewable energy.

www.eere.energy.gov/consumerinfo

Energy Saving Tips

Find energy efficiency and renewable energy information related to your home, community, and state, with a few quick clicks. www.EnergySavingTips.gov

National Renewable Energy Laboratory

What is renewable energy? Why is it important? And why is energy efficiency important? Visit this site for answers to these questions. You'll also find specific information for the homeowner, business owner, and farmer or rancher. www.nrel.gov/learning.html

Sandia National Laboratories — Renewable Energy Technologies Division

Read about R&D under way at Sandia National Laboratories to develop commercially viable energy technologies based on solar, wind, and geothermal resources. www.sandia.gov/Renewable_Energy



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Clean Energy Choices

How should you go about choosing and implementing solar or other renewable energy systems? The information in this booklet can lead the way. www.nrel.gov/docs/fy00osti/27684.pdf

Energy Savers — Tips on Saving Energy & Money at Home

This is a “must stop” on your energy fact-finding mission. Based on the popular booklet of the same name, the site walks you through topics such as insulation, windows, lighting, water heating, appliances... well, it walks you through just about everything you’ll need to know to start saving energy. www.eere.energy.gov/consumerinfo/energy_savers/index.html

Energy-Efficient Landscaping

A well-oriented, well-designed home admits low-angle winter sun to reduce heating bills, rejects overhead summer sun to reduce cooling bills, and minimizes the chill effect of winter winds. Read all about it in the landscaping section of the Energy Savers Web site.

www.eere.energy.gov/consumerinfo/energy_savers/landscaping.html

Energy Efficiency Questions and Answers

Do ceiling fans waste energy? Are programmable thermostats helpful? What’s the best way to ventilate a home? The Center for Renewable Energy and Sustainable Energy answers these questions — and many more. <http://sol.crest.org/efficiency/kgs-columns/index.html>

State Energy Alternatives

Subject areas include Energy Technology Options, Energy Policy Choices, and State-Specific Information. You can click on your state and find out about its renewable resource base and any special incentives available in your area. www.eere.energy.gov/state_energy

Database of State Incentives for Renewable Energy (DSIRE)

This comprehensive source provides information on state, local, utility, and selected federal incentives that promote renewable energy. www.dsireusa.org

Renewable Energy Atlas of the West

The atlas is an 80-page, full-color presentation of the renewable energy resources in the West, including newly released high-resolution wind maps of the Pacific Northwest. The atlas profiles wind, solar, geothermal and biomass power. www.energyatlas.org

Surviving Disaster with Renewable Energy

This site has articles and information describing how renewable energy technologies can help prevent, as well as respond to and recover from, natural disasters. www.nrel.gov/surviving_disaster

Colorado Energy Science Center

The Colorado Energy Science Center sponsors workshops for homeowners (e.g., “How to Cut Your Home Energy Costs”) and educational programs for students and teachers. The Center’s handy “Smart Energy Living Consumers Guide” contains lists of products and services for Colorado’s Front Range. www.energyscience.org

Home Power Magazine

This bimonthly magazine is full of articles and ideas for the do-it-yourselfer and contains advertisements from suppliers nationwide. www.homepower.com

Catalogs and Books

Catalogs: Solar, Wind, and Biofuels

The Alternative Energy Store

1-877-878-4060. An on-line store for solar and wind energy goods. This resource also features free online seminars that, for example, show you how to design your own solar or wind energy system or how to use solar-powered pumps. <http://shop.altenergystore.com/index.asp>

Real Goods and Jade Mountain Catalog

1-800-919-2400. Real Goods Renewables and Jade Mountain merged to become the largest retailer of renewable energy products in the world. Browse their catalog on the following Web site. www.realgoods.com/renew



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The Sierra Sun Design Guide and Catalog

Sierra Solar Systems, 1-800-51-SOLAR (U.S. only). For over 24 years, Sierra Solar has designed and provided solar electric and other alternative energy systems for home and business. They publish the free Sierra Sun design guide and catalog, including information on solar power, wind power, small hydroelectric, solar pumping, solar hot water, alternative energy, and energy conservation. www.sierrasolar.com

The Source for Renewable Energy

The Source for Renewable Energy is a comprehensive online buyer's guide and business directory to more than 7,000 renewable energy businesses and organizations worldwide. <http://energy.sourceguides.com/index.shtml>

Books: Solar and General

Consumer Guide to Solar Energy

S. Sklar and K. Sheinkopf, Bonus Books, 1991.

Harnessing Solar Power: The Photovoltaics Challenge

K. Zweibel, Plenum, 1990.

The New Solar Electric Home

Joel Davidson, Aatec Publications, 1995, P.O. Box 7119, Ann Arbor, MI, 1-800-995-1470, e-mail: aatecpub@aol.com

Practical Photovoltaics, Electricity from Solar Cells

R.J. Komp, Aatec Publications, 1995, P.O. Box 7119, Ann Arbor, MI, 1-800-995-1470, e-mail: aatecpub@aol.com

The Solar Electric House

Steven J. Strong, Sustainability Press, Still River, MA, 1987.

Solar Electricity, A Practical Guide to Designing and Installing Small Photovoltaic Systems

S. Roberts, Prentice Hall, 1991.

From Space to Earth—The Story of Solar Electricity

John Perlin, Aatec Publications, 1998, P.O. Box 7119, Ann Arbor, MI, 800-995-1470, e-mail: aatecpub@aol.com

A Golden Thread, 2500 Years of Solar Architecture and Technology

Ken Butti and John Perlin, Cheshire Books, Palo Alto, CA, 1980.

Power Surge, Guide to the Coming Energy Revolution

Christopher Flavin and Nicholas Lenssen, W.W. Norton & Co., New York, 1994.

A Guide to the Photovoltaic Revolution: Sunlight to Electricity in One Step

Rodale Press, Emmaus, PA, 1985.



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